

CLAIMS

What is claimed is:

1. A method for operating a wireless telecommunications system, comprising steps of:

signalling, between a mobile station to a network, that one of the mobile station or the network is temporarily ceasing transmission of frames;

at the network, determining if a current traffic channel that is assigned to the mobile station can be retained by the mobile station, or whether the current traffic channel must be released by the mobile station; and

if it is determined that the current traffic channel must be released by the mobile station, signalling from the network to the mobile station to release the channel.

2. A method as in claim 1, wherein the step of determining considers a current network requirement for traffic channels.

3. A method as in claim 1, wherein the step of signalling occurs in response to one of the mobile station or the network entering a Discontinuous Transmission (DTX) state.

4. A method as in claim 1, wherein the step of signalling occurs in response to a voice activity detector (VAD) function of one of the mobile station or the network detecting a cessation of voice.

5. A method as in claim 1, wherein for the case where the step of determining determines that the current traffic channel that is assigned to the mobile station can be retained by the mobile station, further comprising steps of:

at some future time, determining that at least one new frame is required to be transmitted; and

transmitting the at least one new frame on said current traffic channel that is assigned to the mobile station.

6. A method as in claim 1, wherein for the case where the step of determining determines that the current traffic channel that is assigned to the mobile station can be retained by the mobile station, further comprising steps of:

at the network, determining, during the period that the mobile station or the network has temporarily ceased transmission of frames, that the current traffic channel must be released by the mobile station; and

if it is determined that the current traffic channel must be released by the mobile station, signalling from the network to the mobile station to release the channel.

7. A method as in claim 1, wherein the current traffic channel is an uplink voice traffic channel.

8. A method as in claim 1, wherein the current traffic channel is a downlink voice traffic channel.

9. A method as in claim 1, wherein the current traffic channel is an uplink data traffic channel.

10. A method as in claim 1, wherein the current traffic channel is a downlink data traffic channel.

11. A method as in claim 1, wherein for the case where the step of determining determines that the current traffic channel that is assigned to the mobile station can be retained by the mobile station, and where the current traffic channel is a voice traffic channel, further comprising a step of transmitting comfort noise parameters over the retained voice traffic channel during the time that the mobile station or the network has temporarily ceased the transmission of voice frames.

12. A method for operating a wireless system that provides voice services and packet data services, comprising steps of:

detecting, in the mobile station, a cessation of user speech;

in response, signalling from the mobile station to a network that the mobile station is entering a Discontinuous Transmission state;

at the network, based at least on a consideration of a current network requirement for uplink voice traffic channels, determining if a current uplink voice traffic channel that is assigned to the mobile station can be retained by the mobile station, or whether the current uplink voice traffic channel must be released by the mobile station; and

only if it is determined that the current uplink voice

traffic channel must be released by the mobile station, sending a channel release message from the network to the mobile station.

13. A method as in claim 12, wherein for the case where the step of determining determines that the current uplink voice traffic channel that is assigned to the mobile station can be retained by the mobile station, further comprising steps of:

at some future time, determining in the mobile station that the DTX state is to end; and

transmitting at least one new voice frame on the current uplink voice traffic channel that was retained by the mobile station.

14. A method as in claim 12, wherein for the case where the step of determining determines that the current uplink voice traffic channel that is assigned to the mobile station can be retained by the mobile station, further comprising steps of:

at the network, determining during the DTX state of the mobile station that the current uplink voice traffic channel must be released by the mobile station; and

in response, sending a channel release message from the network to the mobile station.

15. A method as in claim 12, wherein for the case where the step of determining determines that the current uplink voice traffic channel that is assigned to the mobile station can be retained by the mobile station, further comprising a step of transmitting comfort noise parameters

over the retained uplink voice traffic channel during the time that the mobile station is in the DTX state.

16. A method for operating a wireless system that provides voice services and packet data services, comprising steps of:

detecting, in a component of the network, a cessation of speech;

in response, signalling from the network to a mobile station that the network is entering a Discontinuous Transmission state;

at the network, based at least on a consideration of a current network requirement for downlink voice traffic channels, determining if a current downlink voice traffic channel that is assigned to the mobile station can be retained by the mobile station, or whether the current downlink voice traffic channel must be released by the mobile station; and

only if it is determined that the current downlink voice traffic channel must be released by the mobile station, sending a channel release message from the network to the mobile station.

17. A method as in claim 16, wherein for the case where the step of determining determines that the current downlink voice traffic channel that is assigned to the mobile station can be retained by the mobile station, further comprising steps of:

at some future time, determining in the network that the DTX state is to end; and

transmitting at least one new voice frame on the current downlink voice traffic channel that was retained by the mobile station.

18. A method as in claim 16, wherein for the case where the step of determining determines that the current downlink voice traffic channel that is assigned to the mobile station can be retained by the mobile station, further comprising steps of:

at the network, determining during the DTX state of the network that the current downlink voice traffic channel must be released by the mobile station; and

in response, sending a channel release message from the network to the mobile station.

19. A method as in claim 16, wherein for the case where the step of determining determines that the current downlink voice traffic channel that is assigned to the mobile station can be retained by the mobile station, further comprising a step of transmitting comfort noise parameters over the retained downlink voice traffic channel during the time that the network is in the DTX state.

20. A wireless system that provides voice services and packet data services, comprising:

a mobile station comprising a detector for detecting a cessation of user speech and a transmitter for sending a message to a wireless network for indicating that the mobile station is entering a Discontinuous Transmission state; and

a channel allocation unit in said wireless network that is responsive to a receipt of said message, and

to a current requirement for uplink voice traffic channels, for determining if a current uplink voice traffic channel that is assigned to the mobile station can be retained by the mobile station, or whether the current uplink voice traffic channel must be released by the mobile station, and further comprising a wireless network transmitter that transmits, only if it is determined that the current uplink voice traffic channel must be released by the mobile station, a channel release message to the mobile station.

21. A system as in claim 20, wherein for the case where said channel allocation unit determines that the current uplink voice traffic channel that is assigned to the mobile station can be retained by the mobile station, said mobile station is operable for determining that the DTX state is to end, and transmitting at least one new voice frame on the current uplink voice traffic channel that was retained by the mobile station.

22. A system as in claim 20, wherein for the case where said channel allocation unit determines that the current uplink voice traffic channel that is assigned to the mobile station can be retained by the mobile station, said channel allocation unit is operable to determine, during the DTX state of the mobile station, that the current uplink voice traffic channel must be released by the mobile station and, in response, for transmitting a channel release message from the network to the mobile station.

23. A system as in claim 20, wherein said mobile station is responsive to the case where said channel allocation unit determines that the current uplink voice traffic channel that is assigned to the mobile station can be retained by the mobile station, for transmitting comfort

noise parameters over the retained uplink traffic channel during the DTX state of the mobile station.

24. A wireless system that provides voice services and packet data services, comprising:

a wireless network component comprising a detector for detecting a cessation of speech and a transmitter for sending a message to a mobile station for indicating that the wireless network is entering a Discontinuous Transmission state; and

a channel allocation unit in said wireless network that is responsive to a receipt of said message, and to a current requirement for downlink voice traffic channels, for determining if a current downlink voice traffic channel that is assigned to the mobile station can be retained by the mobile station, or whether the current downlink voice traffic channel must be released by the mobile station, and further comprising a wireless network transmitter that transmits, only if it is determined that the current downlink voice traffic channel must be released by the mobile station, a channel release message to the mobile station.

25. A system as in claim 24, wherein for the case where said channel allocation unit determines that the current downlink voice traffic channel that is assigned to the mobile station can be retained by the mobile station, said wireless network is operable for determining that the DTX state is to end, and transmitting at least one new voice frame on the current downlink voice traffic channel that was retained by the mobile station.



26. A system as in claim 24, wherein for the case where said channel allocation unit determines that the current downlink voice traffic channel that is assigned to the mobile station can be retained by the mobile station, said channel allocation unit is operable to determine, during the DTX state of the wireless network, that the current downlink voice traffic channel must be released by the mobile station and, in response, for transmitting a channel release message from the wireless network to the mobile station.

27. A system as in claim 24, wherein said wireless network is responsive to the case where said channel allocation unit determines that the current downlink voice traffic channel that is assigned to the mobile station can be retained by the mobile station, for transmitting comfort noise parameters over the retained downlink traffic channel during the DTX state of the wireless network.